
Space Weather Forecast

Issued on Friday, 08 July 2022 at 13:09 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Minor Geomagnetic Storms likely Day 1 (8th July), with risk decreasing through the period. Slight chance of Minor-Moderate radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with only a couple of minor Common class flares. The largest and most recent flare was a C1.5 that peaked at 08/1125 UTC, originating from a small active region in the northeast quadrant. No Earth-directed CMEs have been observed in available imagery over the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind exhibited the aftermath of a weak CME initially, followed by the weak influence of the high speed stream originating from CH97/+. While the solar wind speed didn't fluctuate much during this period, between 370-420 km/s, the number of particles within the solar wind increased sharply during the second half of it. The strength of the magnetic field was initially strong, with a strong and constant negative deviation in the important north-south component. However it slowly came back to moderate levels during the second half of the period, the important north-south component also becoming moderate then weak. Resulting geomagnetic activity was Unsettled to Active (Kp 3-4) with a few G1/Minor Storm (Kp 5) intervals, between 07/1200-1500 UTC and then later between 08/0000-0600 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain Low, with a Slight Chance of isolated Moderate class flares. An increase is possible from day 3 (10th) as returning regions potentially rotate onto the eastern limb.

Solar Wind / Geomagnetic Activity: Earth may experience a glancing blow late today or early tomorrow from a CME, which occurred on 05 July. This CME was difficult to assess, and as such confidence is low. Solar winds should stay around slightly-elevated levels today, under the influence of CH97/+. However, they may reach elevated levels tomorrow (09th), should the expected CME arrives

Geomagnetic activity is expected to be Unsettled to Active with Minor Storm intervals likely today (08th July). Activity should decline tomorrow (09th) to become mainly Quiet from Day 3 (10 July).

Energetic Particles / Solar Radiation: No solar radiation storms are likely, although probabilities increase very slightly as the largest sunspot region moves towards centre disc.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	Yes	60	20	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	3	3	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)